Hach FH950 Portable Flow Meter with Electromagnetic Flow Sensor

Now Measures Both Depth and Velocity

NEW!

The FH950 Velocity Meter simplifies set up, displays real time data and trend information, auto-calculates discharge volumes and eliminates the need for manual recording with its convenient USB to PC data download; with no moving parts, the sensor never requires mechanical maintenance.

Features and Benefits

The lightweight, battery-powered FH950 Velocity Flow Meter was designed to provide accurate velocity measurements while simplifying the entire measurement process in rugged field environments. Multiple user-friendly features designed into the FH950 allow you to quickly and easily determine stream velocities for required discharge measurements, or use the FH950 to calibrate area velocity flow meters, or verify primary devices such as weirs and flumes.

User-Friendly Interface Simplifies Programming and Reduces Man-hours by 50%

The FH950's rugged, lightweight and user-friendly design allows for easy set-up, operation and data management. An easy-to-use, menu-driven user interface includes a graphics display that is readable even in bright sunlight. The ability to store and download velocity and depth information within the meter, minimizes field time up to 50%. Discharge calculations are automatically calculated by the meter. Conveniently download collected data to a PC via the USB connection, eliminating the need for labor intensive manual data transfer.

Maintenance-Free Electromagnetic Sensor

The FH950's electromagnetic sensor has no moving parts and never requires maintenance, making it one of the lowest maintenance solutions on the market. Turbulent, noisy and low velocities are easily metered.

When the sensor is placed in flowing water, its magnetic field creates a voltage that is sensed by electrodes embedded in the sensor. The voltage amplitude, proportional to the water velocity flowing around the sensor, is electronically processed by the smart sensor's microprocessor and is digitally transmitted through the cable to the portable meter display.

See the Difference the FH950 Makes!

- *Reduce man-hours 50%—the step-by-step user interface simplifies programming, delivers real time data, and downloads direct to PC—allowing a single person to take the readings and eliminating post site visit manual data transfer from log book to PC*
- *Automatically calculates total discharge based on USGS and ISO methods—reduces time to manually calculate and likelihood of errors*
- *Real-time velocity graphed on color display—visualize velocity trends quickly*
- *Color graphic display guides user to the ideal depth measurement position*
- *One of the lowest maintenance solutions on the market—electromagnetic velocity sensor with no moving parts never requires mechanical maintenance*
- *Lightweight, rugged portable meter—only 1.5 pounds*
- *Water resistant electronics*
- *Rechargeable portable meter*
- *Data Storage for up to 10 profiles (metering sites) with 32 stations (vertical profiles) per profile (site)*
- *Easy-to-use, menu-driven interface display remains readable even in bright sunlight*
- *Ideal for use in waters with organic matter; the magnetic inductive measurement principle is not negatively affected by these conditions like acoustics or mechanical meters*

Applications

- *Streams*
- *Rivers*
- *Weir/Flume/Flow Meter Calibration*
- *Sewers*
- *Mining Channels*
- *Irrigation Channels*

Specifications*

Sensor

VELOCITY MEASUREMENT

Method
Electromagnetic

Accuracy
±2% of reading ±0.05 ft/s (±0.015 m/s) through the range 0 to 10 ft/s (0 to 3.04 m/s); ±4% of reading from 10 to 16 ft/s. (3.04 to 4.87 m/s)

Zero Stability
±0.05 ft/s (± 0.015 m/s)

Resolution
0.01 value <100; 0.1 value <1000; 1.0 value ≥1000

Range
0 to +20 ft/s (0 to +6.09 m/s)

DEPTH MEASUREMENT

Method
Diaphragm type: Absolute pressure with single point calibration

Accuracy (static)
The larger of ±2% of reading or ±0.504 in (0.015 m). Steady state temperature and static non-flowing water.

Range
0 to 10 ft (0 to 3.05 m)

Resolution
0.01 value <100; 0.1 value <1000; 1.0 value ≥1000

Minimum Water Depth
1.25 in (3.18 cm)

GENERAL ATTRIBUTES

Material
ABS, glass-filled

Environmental Rating
IP68

Dimensions of Sensor
4.7" L x 1.7" W x 2.5" H (11.9 cm L x 4.3 cm W x 6.3 H cm)

Cable Material
Polyurethane jacketed

Cable Lengths
5, 20, 40, and 100 ft. (1.5, 6.1,12.2, and 30.5 m)

Portable Meter

GENERAL ATTRIBUTES

Material
Polycarbonate with a thermoplastic elastomer (TPE) overmold

Environmental Rating
IP67

Dimensions of Portable Meter
8.6" L x 3.7" W x 2.1" H (21.8 L x 9.3 W x 5.3 H cm)

Storage Temperature Range
-4 to 140°F (-20 to 60°C)

Operating Temperature Range
-4 to 131°F (-20 to 55°C)

Battery Charge Temperature Range
32 to 104°F (0 to 40°C)

Battery Type
Lithium-Ion, rechargeable

Battery Life Gauge
5 segment bar graph

Battery Life
18 hours heavy typical day use†; 68°F (20°C)

†Defined as 30 minutes of set up, 6 one-hour periods of continuous use with sensor active and display at maximum brightness, 30 minutes of sleep mode between use periods, data download and power off.

Battery Charger
AC wall outlet charger

USB Connector
Type Mini-B, 5-pin, rated to IP67 when capped

USER INTERFACE AND PROGRAMMING

Graphics Display
Color, LCD; 3.5" QVGA, transflective (readable in direct sunlight)

Measurement Resolution
0.01 value <100; 0.1 value <1000; 1.0 value ≥1000

Keypad
Alpha-numeric

Operating Modes
Real-time, Profiling

Profiling Types
Stream, Conduit

Conduit Shapes
Circular, Rectangular, Trapezoidal, 2/3 Egg, Inverted 2/3 Egg

Stream Entries
Fixed, Non-Fixed Stations

Firmware
Sensor and portable meter firmware are field upgradeable via USB

Noise Rejection
User selectable 50Hz, 60Hz

Units of Measure
Velocity: ft/s, m/s, cm/s, mm/s
Flow: ft^3/sec, million gal/day, gal/day, gal/min, m^3/sec, m^3/min, m^3/hour, m^3/day, liters/s, liters/min
Depth: in, ft, m, cm, mm

Stream Flow Calculation
Mean-section, Mid-section

Diagnostics
Self test, keypad, display, event log

Conduit Profile Methods
0.9 x Vmax, 0.2/0.4/0.8, velocity and level integrator, 2D

Stream Profile Methods
1, 2, 3, 5 and 6 point (Velocity method - USGS and ISO)

File Types
Real-time, Profiling, Event Log

Profiles
Data storage for up to 10 profiles with 32 stations per profile

Maximum Number of Real-Time Files
Three each with up to 75 readings captured by the user.

Language Support
English, Bulgarian, Chinese, Czech, Danish, Dutch, Finnish, French, German, Greek, Hungarian, Italian, Japanese, Korean, Polish, Portuguese, Romanian, Russian, Slovenian, Spanish, Swedish, Turkish

Engineering Specifications

1. The flow meter shall be a portable meter with electromagnetic sensor capable of measuring depth and velocity or velocity only.
2. The sensor technology shall be electromagnetic, with no moving parts and able to be disconnected from meter.
3. The range of velocity measurement shall be 0 to +20 ft/s (0 to 6.09 m/s)
4. The range of depth measurement shall be 0 to 10 feet.
5. The flow meter shall include a USB port for data downloads to a personal computer.
6. The flow meter shall measure noisy and turbulent velocities.
7. The flow meter shall be capable of storing up to 10 monitoring sites and 32 vertical profiles, and performing basic open channel profiling in the field.
8. The flow meter shall have a 5 segment bar graph battery life gauge.
9. The flow meter shall have a system self-check function.
10. The flow meter shall have a battery saver mode/auto shut-off.
11. The flow meter shall be battery powered using rechargeable Lithium Ion batteries.
12. The flow meter shall have an external AC recharging capability.
13. The flow meter shall have a graphical display. The display shall be color LCD, 3.5" QVGA, transflective (readable in direct sunlight).
14. The flow meter shall have a color bar indicator for proper sensor positioning for collecting depth measurements.
15. The flow meter shall automatically calculate total discharge based on USGS and ISO methods.
16. The flow meter shall be water resistant, rated to IP67.
17. The weight of the flow meter shall be no greater than 1.5 lbs (0.68 kg) without the sensor and no greater than 2.6 lbs (1.18 kg.) with the sensor and 20 feet of cable.
18. The portable flow meter shall have a 21-key alphanumeric key pad, including power, hot keys and arrow keys.
19. Environmental noise rejection levels shall be user selectable at 50Hz or 60Hz.
20. Real-time velocity shall be graphed on the flow meter's display.
21. The flow meter shall be the Hach FH950 Portable Velocity Flow Meter.

Ordering Information

FH950 Portable Flow Meter System

System includes portable flow meter, electromagnetic sensor with specified cable length, universal sensor mount, USB cable, wading rod mount, power supply/charger, neck strap, thumb screw kit, soft case, and disposable cloth for cleaning.

FH950 Meter and Sensor System	FH950.	1	X	X	X	X
Portable Meter (Hach FH950, with User Manual)		1				
Electromagnetic Sensor (Velocity Only)			0			
Electromagnetic Sensor (Velocity and Depth)			1			
Cable Length						
5 foot (1.5m)				0	0	5
20 foot (6.1m)				0	2	0
40 foot (12.2m)				0	4	0
100 foot (30.5m)				1	0	0

Replacement Parts & Accessories

FH950 Portable Meter

FH950.1 FH950 Portable Flow Meter (includes battery, battery charger and meter), English

Electromagnetic Sensors

EM950.0005 Velocity Only Sensor w/5 ft (1.5 m) cable

EM950.0020 Velocity Only Sensor w/20 ft (6.1 m) cable

EM950.0040 Velocity Only Sensor w/40 ft (12.2 m) cable

EM950.0100 Velocity Only Sensor w/100 ft (30.5 m) cable

EM950.1005 Velocity and Depth Sensor w/5 ft (1.5 m) cable

EM950.1020 Velocity and Depth Sensor w/20 ft (6.1 m) cable

EM950.1040 Velocity and Depth Sensor w/40 ft (12.2 m) cable

EM950.1100 Velocity and Depth Sensor w/100 ft (30.5 m) cable

Accessories

9073400 Fabric Carrying Case

9073600 Lithium Ion Battery

9072600 Battery Charger

9070800 USB Cable, 3 ft (1 m)

75015 Universal Sensor Mount

9071700 Adjustable Meter Mount

9073500 Wipe Cloth, used for cleaning

9073200 Sensor Thumb Screw Kit

9072700 Lanyard

Contact factory for information on Standard and Top Setting Wading Rod Kits or Suspension Cable Kits.

NOTE: Additional cable cannot be added after order is entered.

At Hach, it's about learning from our customers and providing the right answers. It's more than ensuring the quality of water—it's about ensuring the quality of life. When it comes to the things that touch our lives...

Keep it pure.

Make it simple.

Be right.

For current price information, technical support, and ordering assistance, contact the Hach office or distributor serving your area.

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